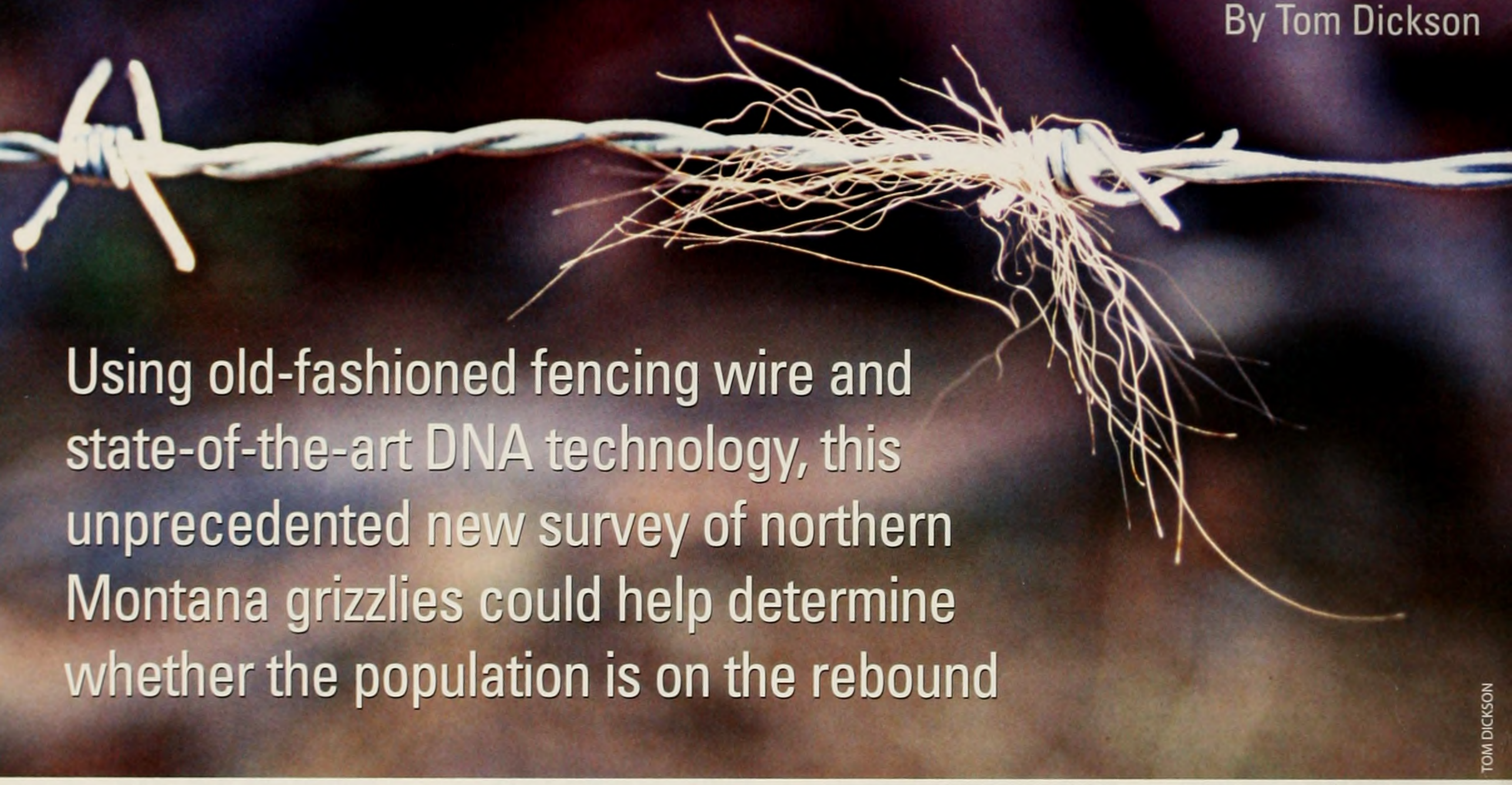
Barbed-Wire Bears

By Tom Dickson



TOM DICKSON

Using old-fashioned fencing wire and state-of-the-art DNA technology, this unprecedented new survey of northern Montana grizzlies could help determine whether the population is on the rebound

I've smelled vile odors before, but the year-old fermented mix of cow blood and fish guts that Lynette Noble pours from a water bottle is enough to send me running for the bushes.

Noble, though, has grown used to the stench. A technician for the largest grizzly bear population survey ever conducted, the University of Montana graduate resecures the lid, slides it into a plastic bag, and places the package into a backpack. She has been handling these bottles of bear "lure" throughout the summer of 2004.

"It's still bad, but not like the first time I smelled it," she says, wrinkling her nose.

Though repulsive to humans, the bloody cocktail apparently is irresistible to bears. Which is why it is being poured on piles of rotting logs at 2,560 sites throughout an 8-million-acre area bordered by Canada, the Rocky Mountain Front, Flathead Lake, and the Blackfoot River Valley. The idea is to lure grizzly bears to the sites, which are surrounded by a single strand of barbed wire. Using DNA analysis, scientists will later identify bear hair snagged on these wires and on bear "rub" trees and posts. The information will provide biologists with the first reliable estimate of the Northern Continental Divide Ecosystem (NCDE) grizzly population, considered the largest in the lower 48 states. Results of the survey could also add fodder to debate over one of the country's most charismatic and controversial wildlife species.

MAJOR RAMIFICATIONS

"The main question we're trying to answer is how many grizzly bears are now in the NCDE," says Kate Kendall, who coordinates the Northern Divide Grizzly Bear Project. A U.S. Geological Service research biologist stationed at Glacier National Park, Kendall explains that wildlife managers can't effectively protect, control, restore, or otherwise manage grizzly bears or other wildlife populations unless they first know how many animals exist and whether the population is increasing or decreasing.

"Right now, the population is managed on a rough estimate," she says.

That will change in late 2006, when the results of the 2004 bear survey will be published. Though the project will generate reams of useful data, most eyes will be on one number: the NCDE grizzly bear population estimate.

The population size will be a major factor in how the U.S. Fish and Wildlife Service (USFWS) determines the progress of NCDE grizzly bear recovery. The most immediate ramification of the new population estimate may be a change in the number of grizzlies that can be safely removed from the NCDE population, says Chris Smith, chief of staff for Montana Fish, Wildlife & Parks.

"One of the big challenges right now is knowing if the NCDE grizzly population can sustain current levels of human-caused mortality—like from collisions with trains

and cars, depredation management removals, things like that," says Smith.

Based on sightings of females with cubs, the USFWS currently estimates the NCDE grizzly population at 400 to 700 grizzlies.

"Based on that range, recent mortality has exceeded the rate specified in the federal Grizzly Bear Recovery Plan," Smith says.

In other words, it may be that more grizzlies are now dying than being produced, resulting in a declining, unsustainable population. Which would mean Montana should be taking additional precautions to reduce mortality.

However, FWP grizzly experts strongly believe the NCDE population is above the USFWS estimate. Over the past decade, they've watched as growing numbers of grizzlies have spilled east from the Rocky Mountain Front into Choteau and other lowland communities. The bears are also now moving more frequently south to the Blackfoot Basin and west to the Salish Mountains between U.S. Highway 93 and Lake Koocanusa.

If the state bear specialists are correct and the DNA study shows the population is higher than now thought, then current grizzly mortality might not be harming the NCDE population.

"That would give us more management flexibility," says Smith. "For instance, maybe we could transplant some NCDE grizzlies to the Cabinet-Yaak Ecosystem, which is seriously short of bears."

If the DNA count shows a high population, that could also mean the recovery goal has been reached—another step in the long and laborious process for delisting grizzlies in the NCDE. Smith cautions that even with such a step, delisting would be years off.

"Some people either fear or hope that this [population estimate] will lead to immediate delisting, but that won't be the case," he says. "There would also have to be additional monitoring to show that this grizzly population is either stable or increasing and that there's enough secure habitat. The number we get from the 2004 population survey is crucial, but it's by no means the only factor that will go into decisions about the grizzly."

THE PROJECT

An accurate number of NCDE grizzlies has eluded biologists for decades. Comprising Glacier National Park and the Bob Marshall, Scapegoat, Great Bear, and Mission Mountains wildernesses, the ecosystem is one of the wildest and most inaccessible in the contiguous United States. Moreover, grizzly bears are among the most difficult animals to count. For decades, biologists thought a reliable population estimate of these secretive bears in the NCDE would be impossible to obtain.

Then came DNA hair follicle sampling. By snagging the hair of bears visiting lure stations or using rub trees, researchers can now identify individual animals and accurately estimate population size with the same DNA technology police use to solve crimes.

"In addition to being quick and relatively inexpensive, one major advantage of DNA analysis is that we don't have to trap, tranquilize, collar, and otherwise handle bears," says Kendall. "In fact, there's really no interaction between bears and people."

Such technological advances notwithstanding, surveying bears in the 8 million

A BLOODY OPERATION Surveying grizzlies in the 8-million-acre Northern Continental Divide Ecosystem (above) required a mix of new technology and old hardware. Counterclockwise from above left: Technician Lynette Noble pours a bottle of lure on a scent pile; Noble and technician Kyle Baier carefully remove snagged bear hairs; placing hairs in bar-coded envelopes, later sent to headquarters for recording and DNA analysis; using lighters to sterilize each barb before leaving the site.

PHOTOS BY TOM DICKSON

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>
> —Kate Kendall, *Project Leader, Northern Divide Grizzly Bear Project*

acres comprising the NCDE was a monumental task. It began in 2003, when wildlife biologists and local bear managers helped Kendall and her staff identify sites to set up scent stations as the first phase of the Northern Divide Grizzly Bear Project. Meanwhile, crews covered 4,200 miles of trails, powerline corridors, fence lines, and forest roads to identify 4,750 trees and posts where bears like to rub their bodies.

The following year, more than 200 temporary employees began building, checking, and dismantling the scent stations. Added to the workforce were 200 part-time volunteers, who helped at scent stations, fermented and bottled the lure, and packed materials into the backcountry.

THE DIRTY WORK

Most of the workers were technicians such as Noble and her work partner Kyle Baier. On the day when I accompany the pair, they are checking a station in cell number 101P3 about 25 miles east of Missoula on land owned by Plum Creek Timber Company. After driving to the remote site, we hike in several hundred yards from the logging road, letting our noses lead us to the lure station, which the technicians set up two weeks earlier. Noble and Baier check each barb of the wire surrounding the odoriferous woodpile. The wire, exactly 50 centimeters from the ground, snags hair whether bears go over or under it. Being careful to retain the follicles, which hold the tissue containing DNA, the technicians use tweezers to place each hair into an envelope. They then use lighters to sterilize each barb on the wire.

"That removes any DNA and ensures we don't count the same bears the next time we use the wire at a different site," says Baier, a University of Montana geology undergrad.

Kendall says 11 quality-control experts maintained the study's strict protocols by inspecting lure stations and making sure the technicians used proper technique.

"For a project this big, it's essential to maintain a high level of consistency throughout," she says.

Maintaining security is also essential. The Northern Divide Grizzly Bear Project will cost $4 million, most of it from federal appropriations championed by Senator Conrad Burns.

"A lot of public money went into this project, so we took security very seriously," Kendall says.

For example, all hair samples were kept in a vault. Also, envelopes containing hair samples were bar coded, so they could be scanned to avoid typographical errors. Computer data was backed up daily, and backups were stored off-site.

Once they have dismantled the first scent station, Noble and Baier drive farther into the forest to put up another. After pounding four metal fence posts into the rocky ground, they gather armloads of dead wood and build a mound 3 feet high, onto which they pour several liters of lure. Then they hoist a rag soaked in lure above the pile to catch the wind and the notice of bears.

Some of the project's technicians did their surveys by truck, while others used four-wheelers. Most of the surveys, however, were conducted in backcountry wilderness, requiring crews to pack in everything necessary to set up lure stations. On each site visit, pairs of technicians backpacked in three 1-liter bottles of lure, two rolls of barbed wire, a radio, a GPS unit, and fencing pliers, plus food, a tent, and other personal gear. Some of the men and women carried packs weighing 85 pounds.

Though the crews saw a lot of wilderness, they didn't see many bears. Kendall says the 200 techs had just 95 confirmed grizzly bear sightings for the entire summer.

"Generally, bears don't want to be seen and stay away from people, so that number didn't surprise us," she says.

More remarkable than the relatively few bear sightings, Kendall says, was the lack of work-related injuries: a few sprained ankles and banged thumbs, and one torn knee ligament. Also, there was not a single bear-related injury or even a serious charge or other encounter—much to Kendall's relief.

"I have to admit that some people told me I was sending these techs out on a suicide mission, putting them into the heart of grizzly country loaded with bottles of bear attractant," she says. "But we knew all staff were well trained in bear avoidance and that we'd taken the necessary precautions."

Kendall's confidence came from coordinating a similar study on 2 million acres in and around Glacier National Park from 1998 to 2000. There, she pioneered the tree rub survey technique and learned to train and orchestrate large field crews.

Tom Dickson is editor of Montana Outdoors.

FWP Radio Telemetry Study

It's essential to find out how many grizzlies live in the NCDE. But more important is knowing whether that population is decreasing, increasing, or stable.

Rick Mace, Montana FWP's senior bear research scientist, is heading a project that monitors the NCDE grizzly bear population. The survey, also supported by other state and federal agencies, Indian tribes, and the University of Montana, will show whether the grizzly population is moving up or down from the base number derived from the DNA hair study. Those results could indicate whether the population has recovered and could be moved toward delisting.

In 2004, Mace and other biologists captured, tranquilized, and fitted radio collars onto 25 female grizzlies. Over the next several years, they will monitor the bears from aircraft to learn whether the animals die and how many cubs they produce. Satellites will pick up GPS signals from the collars of bears the biologists can't locate from aircraft.

CURIOUS COWS

When the survey ended in August 2004, the team had accomplished an extraordinary amount of work: 300,000 miles driven, 66 miles of wire used (all of which was retrieved and either donated to landowners or recycled), 12,000 miles of backcountry hiked to monitor rub trees, 190,000 envelopes prepared, and half a million envelope labels applied by hand.

"As far as we know," Kendall says, "this was the largest bear monitoring project ever conducted."

Currently, technicians at a private genetics testing laboratory in British Columbia are analyzing the DNA in the hair samples. Kendall expects that work to be done next spring, and she plans to issue a final report in the fall of 2006.

Back in the field, I help the two technicians build an enclosure fence around another scent station to keep out cattle, which for some reason are attracted to the sites. "Cows come in and tear up the stations," says Noble. "Just the other day we had one break through the barbed wire and knock everything over. I think they're just curious."

Cows aren't the only ones. Montanans and others interested in the future of the grizzly bear eagerly await Kendall's report and the results of a parallel FWP study (see sidebar, below). What everyone wants to know is how many grizzly bears live in the Northern Continental Divide Ecosystem, whether those numbers are going up or down, and most important, how that trend will alter future grizzly management decisions.

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"We know that females will have cubs during this project and that some females will die," Mace says. "To come up with a population trend, we compare the mortality rate of females to their reproductive rate. A growing population has a higher birth rate than death rate. For a declining population, it's the other way around."

MONTANA FWP

E-NECKLACE A tranquilized grizzly sow awaits her radio collar. Over the next several years, FWP biologists will monitor the survival and reproduction of 25 grizzlies.

GOING UP OR DOWN? Much rides on the results of the 2004 population estimate and an ongoing population trend study of the Northern Continental Divide Ecosystem grizzly population. If the population is falling, Montana will need to take additional steps to reduce human-caused mortality, such as from trains and other vehicles. If grizzly numbers are rising, however, that could mean they are doing well enough to begin down the long and politically potholed road to federal delisting.